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NOTE ON THE ANATOMY AND PATHOLOGY OF THE SKIN.[1]

BY J. COLLINS WARREN, M. D.

In the report of the proceedings of the society for April 27, 1875, published in the *New York Medical Journal* for that year, a description is given of a specimen of round-cell sarcoma, which, arising in the tissue beneath the skin of the back, had at the time of its removal begun to infiltrate the superjacent cutis. A vertical section through the skin and tumor disclosed the interesting feature of this specimen. The cutis, which was quite thick, showed beneath it the outline of the disease sharply defined, whence projecting upward to the surface were several slender, parallel columns of sarcoma tissue at equal distances from one another, reaching the epidermis at points where the little dimples made by the openings of the hair follicles were to be seen (Figure 3). The following is the report of the microscopical examination made at the time for the purpose of throwing light upon this unusual phenomenon: "Topographical sections of the part made by Dr. Quincy showed that in forming these columns the disease had followed the hair follicles and sweat ducts. The sweat ducts could not be traced to the surface in these prolongations in all cases, but the hair follicles were almost invariably found. More minute examination of the intervening cutis showed the connective tissue fibres at many points to be indiscriminately mingled with small, round cells." Horizontal sections showed these columns to be cylindrical in shape, and not slits or clefts in the cutis occupied by the disease. At varying distances from the surface the masses of cells branched off horizontally, infiltrating the skin in different directions. This was readily seen both in horizontal and vertical sections.

At a meeting of the society held September 28, 1875, a description of the adjacent healthy skin was given,[2] the structure of which readily explained the peculiar disposition of the infiltrating cells. It was apparent to the naked eye that the subjacent adipose tissue penetrated the cutis vera for some distance, forming vertical parallel columns reaching nearly to the surface. Sections of this skin showed under the microscope the ap-

[1] Communicated to the Boston Society of the Medical Sciences.

[2] Report of the Proceedings of the Boston Society of Medical Sciences from September, 1875, to May, 1876. Reprinted from the New York Medical Journal.

pearances represented in Figure 1. From the adipose layer there arises at a slight angle from the perpendicular a long, slender column of adipose tissue (*d*), terminating directly beneath the root of a lanugo hair (*h*), which, as will be seen, penetrates but a short distance the thick layer of cutis. At about the centre of this canal — for the cylindrical-shaped cavity of the cutis which contains this column of fat is thus most appropriately named — the coil of a sudoriparous gland (*e*) may be seen. This gland is much more distinct in the section than in the drawing. In some instances the duct may also be seen extending to the apex of the canal, whence it may be traced to the side of the hair follicle, where it probably finds its way to the surface. (In dogs the sweat duct opens into the hair follicle itself at a short distance from its mouth.) The sudoriparous gland is suspended, as it were, in the soft adipose tissue by delicate bands of connective tissue which traverse the canal in a longitudinal direction. These bands of fibres were found in other sections to accompany a blood-vessel running in a very straight course from the adipose layer below to the base of the sweat gland, beyond which occasionally it might be traced. Around the base of the hair follicle is the sebaceous gland (*c*), from the open mouth of which the hair seems almost to spring. A short distance above the level of the sweat gland are two clefts in the cutis extending obliquely upwards from the canal. These clefts are quite constant (Figures 1 and 2), and may be found to contain a blood-vessel or a fragment of a sweat gland. It was evidently through these channels that the sarcoma cells spread in a horizontal direction. There were a few longer hairs, which passed through the entire thickness of the cutis, and in the neighborhood of these no such structures as we have described were found. The diseased tissue as it began to involve the skin advanced through natural channels which from their anatomical character would offer less resistance to elements penetrating from the subcutaneous tissue to the surface than the dense fibrous portions of the cutis vera.

Skin from various parts of the body and from individuals of various ages was examined to determine how constant a structure this was. A section of the skin of an infant, taken from the shoulder (Figure 2), shows well the relation of these fat canals to the hair follicles and erector pili muscles. We see, as before, the sweat glands which, we may say here, are always to be found in these canals, although they are also seen in the intervening structure of the cutis. The obliquity of the canal places it at a slight angle to the shaft of the hair, while its long axis is nearly parallel and continuous with that of the erector pili muscle, the lower border of which is as a general thing directly continuous with the adjacent border of the canal. The sebaceous gland (*c*) is seen between the muscle and hair follicle, the position usually ascribed to it. It will be observed that the hair curves to the side on which the muscle

is situated. This I have found to be constant and in accordance with the description of other writers. (Figures 2, 3, and 4.) Skin was examined from the back, chiefly near the median line, the shoulder, arm, breast, abdomen, and lower extremities. In all these specimens fat canals were found to exist and to bear the relation to the lanugo or downy hair which has been described. The length of these canals varied, of course, with the thickness of the skin. On the back, between the shoulders, they were most typically developed, and in individuals who were fat the breadth of the canal exceeded frequently that shown in Figure 1. The actual thickness of skin in Figure 1 at its narrowest part is 5.5 mm. The length of the fat canal is 4 mm. On the other hand, in lean individuals, where the tissue beneath the cutis was devoid of fat, no fat cells were found in the canals. A delicate connective-tissue network is there seen supporting blood-vessel and sweat gland. In thin skin the canals are either short or, if the hair is of sufficient length to extend to the bottom of the cutis, absent. A thick skin and the existence of downy hairs are, then, the conditions necessary for the presence of this structure in its most marked form. The frequency with which these canals occur depends upon the quantity of hair. In some sections of half an inch in length I have seen as many as five. In Figure 3 the canals are numerous, but no more so than is often found on the back, where they seem to exist in the greatest numbers. At other points long intervals occur where none are found. I did not find these canals in the skin of the face of a female, the cutis vera being thinner and less dense than in other specimens examined. In the lip of a rat, although the tissue in which the long hairs were embedded was quite transparent, vertical rows of fat cells, arranged like the beads of a rosary, were seen beneath the roots of many of the hairs.

It having been suggested that this was the route of the lymphatic vessels, a reference to Neumann's work on the lymphatics of the skin[1] showed that no such structure was alluded to. This author describes the lymphatic vessels as distributed through the skin in two horizontal layers, a superficial and a deep one, the vertical connection between the two being found only at comparatively rare intervals. The following experiments were made to determine the question of the presence of lymphatic vessels in these canals, and also to observe to what extent fluids and particles pressed up from below could be forced to the surface : —

Skin was taken from the body of an individual within twenty-four hours after death. A small amount of the loose areolar tissue was left adherent to its lower surface. The skin being prepared by warming for a few minutes in water of about 90° F., Berlin blue was injected by means of a subcutaneous syringe into the loose areolar tissue, which was rap-

[1] Zur Kenntniss der Lymphgefässe der Haut. Von Isidor Neumann.

idly distended by the fluid. The specimen was then thrown into strong alcohol. A similar fragment of skin was stretched like a drum over the end of a brass cylinder, to which it was firmly attached by an open brass cap and screws. The cylinder being held vertically, Berlin blue was poured upon the skin, the outer surface of which looked downwards; a rubber cork perforated by a glass tube was securely fastened to the top of the cylinder, and the tube was connected with an apparatus designed to exert any atmospheric pressure required. The pressure, sufficient to raise a column of mercury twenty-eight millimeters, was continued for an hour and a half, the skin being pressed out in dome-shape, at the bottom of the cylinder, with great force. The specimen was then placed in alcohol. It was observed that the injection mass had gone at one or two points to the surface, and on making vertical sections of the skin the next day the cutis was found to be penetrated by the mass in vertical blue lines, which united at various points by horizontal branches, occasionally so numerous as to present an almost continuous blue surface. The subcutaneous areolar tissue was uniformly colored blue. The first specimen showed on section the same vertical lines at one or two points, but the force of the injection had not been sufficient to carry the blue mass into all the canals. Thin sections placed under the microscope showed that the mass had passed into the canals already described. As the subject was lean and the fat absent, the route of the fluid could be studied with facility. The injection mass could be seen on entering the canal to follow the course of a blood-vessel (already described), at first surrounding and obscuring it, but as it failed in quantity to lie in patches on its surface. At no point could an injection of the vessel itself be discovered. It is probable, therefore, that the channels injected by this mass were lymphatic ("perivascular lymph spaces"), and that the two horizontal layers of lymphatics described by Neumann are brought into communication by these routes.

The special function of these canals is not evident. In addition to furnishing a route for the blood-vessels and lymphatics, there would seem to be some connection with the hair and its apparatus. The constant relation which they bear to this structure and the erector pili muscle would suggest a condition designed to facilitate the action of the muscle. According to Biesiadecki,[1] this muscle by its contraction raises the hair from the position which it occupies nearly horizontal to the surface to a more vertical one. That this must be the result of a contraction of this muscle is evident from a glance at Figures 2, 3, and 4. Any movement of the root of a lanugo hair would be well-nigh impossible, imbedded in the dense tissue of the cutis, were it not for a yielding structure like that of the canal, an elongation of which would greatly aid the contraction of the muscle. The presence of fat

[1] Stricker's Handbuch der Lehre von den Geweben des Menschen und der Thiere.

near the hair bulb is made possible by this structure, which may therefore have some bearing upon the nutrition of the hair.

The possibility of diseased products finding their way from below to the surface through these canals induced me to seek for other examples beside that already referred to.

Nævi, which are congenital and appear and spread on the surface of the skin soon after birth, are developed in the subcutaneous adipose tissue chiefly, which will always be found to be more extensively affected than the skin above. A rapidly spreading nævus on the shoulder of an infant was excised by Dr. George H. Gay, who kindly gave me the specimen to examine. A vertical section through the specimen showed the lobulated vascular tissue occupying the place of the adipose layer. At the point where the invasion of the skin began (Figure 4), elongated masses of the disease could be observed even with the naked eye, and easily with a lens, to extend nearly to the surface. These prolongations were vertical and parallel, and a higher power showed that they communicated freely with one another (*n*) by horizontal coils of the vascular tissue until the development of the disease reached a point where the cutis vera was no longer to be found. This method of invasion is shown in Figure 4, the cutis vera appearing where the disease is present as islets in the vascular tissue. The erector pili muscle (*b*) of one of the canals invaded is still seen, but has been unusually elongated, the development of the disease having raised the surface of the skin at this point above its natural level. The lobulated character of the vascular tissue peculiar to nævi is shown at the bottom of the drawing. The magnifying power is of course too low to show the vessels well, and no attempt has been made to draw them. Perhaps the most striking instance which can be offered of disease working to the surface is seen in carbuncle. In this affection the pus infiltrates the parts attacked, and does not collect within a circumscribed wall, as in abscess. Its situation on the back, where the canals are found to be larger than elsewhere, and its peculiar honey-combed character, suggested an invasion of the skin through these canals. An examination of the piece of skin removed from the border of a carbuncle confirmed this belief. The fat canals were found distended with small, round cells, which distended also the horizontal clefts of the cutis communicating with these canals. As the centre of the disease was approached, the cutis intervening between two of these canals was found much softened, and crumbled under the razor. The small, circular openings formed in the skin by the pus, an appearance so characteristic of carbuncle, were bounded by several columns of pus or wandering cells occupying the place of the now broken-down tissues of the canals, while the intervening cutis, occupying probably the district supplied with nutriment through these channels, had melted away. Vertical sections of skin still in a tolerable state of preservation presented the appear-

ance described already in the case of the round-cell sarcoma (Figure 3). Owing to their distention with pus or cheesy products the vertical columns are easily recognized.

Whether the so-called "core" of a boil may not be the necrosed fragment of cutis cut off from its blood supply by the obliteration of one or more of these canals by inflammatory products, I have had no opportunity yet to determine. Whether the situation of vesicles or papules in a cutaneous eruption correspond in any way to the distribution of these canals is also a subject for future inquiry.

In a case of melanotic sarcoma of the skin of the back, situated just beneath the corium, a number of sections were made to observe the progress of the disease downwards through the skin. Although the canals were numerous, the disease had hardly reached a sufficient depth to determine to what extent its further progress might have been modified by these structures. In those directly beneath the tumor a small, round-cell infiltration was observed in one or two instances. The more malignant form of cancer of the skin, of which cancer of the lip is the type, might be found to traverse these canals. In the lip and penis, however, the canals would not be found. When occurring on other parts of the skin, on the back of the hand, as it occasionally does, it might be studied to advantage.

In drawings of vertical sections of the skin irregularities of contour are sometimes to be seen at the line of junction of the adipose layer with the cutis vera, or irregularities in the arrangement of the fibres of the cutis, indicating that the section has been made near a canal. I have been unable, however, to find any description of these fat canals in modern text-books or recent periodical literature.

The drawings were made by Dr. H. P. Quincy from sections prepared by him. The experiments were performed in Professor Bowditch's laboratory.

A CASE OF HYDROPHOBIA.

BY SANDFORD HANSCOM, M. D., EAST SOMERVILLE.

On the morning of the 20th of November a good-natured pet spaniel, which had never been known to snap at any one, suddenly and without any provocation sprang at his mistress. His master whipped him, and he was left in the cellar of the house until the time for his dinner. While eating it in the company of a pet cat, as he had been accustomed to, without ever having molested her, he suddenly seized the cat and threw her across the room. The owner reached out his hand to catch the dog, when the latter caught him tightly by the wrist and inflicted a deep wound, biting him three times; the skin became lacerated while making an effort to shake him off. It was supposed at

the time that the dog was irritable from the whipping which he had received in the morning, and as he expected another, for snapping at the cat, defended himself by biting. Half an hour after, the patient applied to me for treatment, and believing it to be too late for excision or cauterization to be effective, and as there was no history of hydrophobia, I dressed the wound with a solution of carbolic acid. It healed readily, and the patient attended to his business as usual in four or five days. Soon after the infliction of the bite the dog disappeared and he did not return for thirty-six hours; nothing could be ascertained of his whereabouts or of his behavior during that time. When he returned he was very much exhausted, and had the appearance of having been severely beaten. From what I can learn of those who saw him he gradually grew weaker, apparently losing the use of his legs, especially the hind ones, which he would drag after him. He died quietly, with his head in the lap of his mistress, without having had a convulsion, excessive flow of saliva, or tremors. On the 13th day of January (fifty-four days after the injury), the patient began to have shooting pains in the fore-arm, but not especially localized. They did not radiate from the cicatrix, and there was no change in the appearance of the latter. On the following day the pain had increased so much that he required one sixth of a grain of morphia to relieve him; it was given subcutaneously, and was repeated the next morning. After that there was very little pain in the arm, and no appreciable change in the pulse or temperature. He was despondent, and stated on the morning of the 15th that "he felt sick and used up all over;" he was obliged to go to bed in the afternoon, and then for the first time began to have some difficulty in swallowing. This symptom was not manifested by an attempt to drink water, but during an effort to swallow some herb tea that he was accustomed to take when ill, and which he believed would relieve his bad feelings. There was no trismus; he was quiet and inclined to doze. At five P. M. Dr. H. H. A. Beach saw the patient with me, and agreed that the history of the case in connection with the symptoms then existing indicated the probable development of hydrophobia, and an unfavorable prognosis was given to the patient's brother, who promised not to communicate it to the patient or his friends until the disease should be fully declared. His pulse at that time was 102, and the temperature in the axilla 102° F., face flushed, tongue coated. The cicatrix presented no unusual appearance, nor was it tender. A dark room was agreeable to him, but on raising the curtains the light did not disturb him in the least. He was perfectly rational and had some thirst, but no sore throat. He made an attempt to swallow a teaspoonful of milk, but was obliged to give it up from the moment that the fluid touched his lips. Immediately after this attempt unmistakable spasmodic contraction of muscles between the chin and sternum was observed. Mentally the patient

was perfectly clear and not disturbed by the unsuccessful attempt at swallowing fluids, but said he would try it again when he should be more thirsty. This symptom, excepting when he swallowed teaspoonful doses of medicine, continued until his death. He was obliged to relieve his thirst by sucking ice and snow through a napkin. The air from a fan or from adjusting the bed-clothing caused a shudder. Occasional sighing was noticed after the second day; it grew deeper and more frequent until the end. When disturbed from any cause his respiration was of a spasmodic character, so much so at times as to interfere with his speech.

On the following morning (the 16th) his pulse was 96, and mild delirium first developed; this also continued until his death. He was easily controlled throughout the disease. He became very suspicious of the people about him, believing that they were attempting to make him the victim of practical jokes, then of being poisoned. One hallucination was continuous from the time that the delirium first developed; he thought that some one had thrown a dirty powder on him, and he was continually making efforts to shake it off from himself and his clothing. He was also very cross and dictatorial, but showed no disposition to snap or bite.

Between four and five P. M. on the 18th he began to have spasmodic contraction of the muscles of the chest, larynx, and throat; some of them lasted nearly a minute, and prevented him from taking an inspiration. He also had a profuse discharge of saliva sufficient to wet his clothing through from his chin down to his hips. The spasmodic contractions concerned in respiration exhausted him rapidly, and he died quietly at 8.15, while sitting up in a chair. This position became necessary from the fact that he could not lie on his side, and if on his back the saliva accumulated so rapidly that it obstructed his respiration. For the last twenty minutes before his death there was no spasm. He lived five days after the first general symptom. At no time was he disturbed by the sound of ringing bells or running water. Morphia in one-fourth-grain doses, and chloral and bromide of potassium in fifteen-grain doses of each at the same time were given as needed. Anæsthetics were not required. At the solicitation of his friends he was allowed to take a pill, the prescription for which was said to be one hundred years old and to have cost originally five hundred pounds. It had the reputation of curing and preventing many cases of the disease. No change in his symptoms could be attributed to its action, nor could its composition be ascertained. It was given as a placebo, on the chances that a hysterical element existed in this case; that whatever offered encouragement to the patient without the possibility of injury in his hopeless condition was justifiable, but so far as the evidence furnished by one case is of value its inefficacy was demonstrated. The permis-

sion of the friends for an autopsy could not be obtained. The particular symptoms of the disease which were not observed in the dog when seen might have existed during the thirty-six hours that he was absent.[1]

The proximity of the wound to the ulnar nerve and its character (punctured and lacerated) suggested the consideration of tetanus as an explanation of the symptoms; the latter seemed to be fairly excluded, however, on the ground that delirium was continuous from the third day of the attack, and that at no time did trismus or any other form of tonic spasm exist; the profuse discharge of saliva was also corroborative of this view. The unquestionable existence of repeated attacks of laryngeal spasm; the fact that the symptoms developed after a considerable interval had elapsed from the date of the injury; that for three hours previous to his death, and after he became wholly unconscious, marked spasms of the chest and throat occurred at intervals of from three to five minutes; that death occurred as a result and within five days following the development of symptoms characteristic of the disease, reasonably offsets a theory that the hydrophobic symptoms were simulated by a hysterical man.[2]

[1] Mr. Youatt's description has been the one most uniformly accepted and quoted. He says: "The disease manifests itself under two forms: *the furious form*, characterized by augmented activity of the sensorial and locomotive systems, a disposition to bite, and a continual peculiar bark. The animal becomes altered in habits and disposition, has an inclination to lick or carry inedible substances, is restless, and snaps in the air, but is still obedient and attached. Soon there are loss of appetite and the presence of thirst, the mouth and tongue swollen; the eyes red, dull, and half-closed; the skin of the forehead wrinkled; the coat rough and staring; the gait unsteady and staggering; there is a periodic disposition to bite; the animal in approaching is often quiet and friendly, and then snaps; latterly, there is paralysis of the extremities; the breathing and deglutition become affected by spasms; the external surface irritable, and the sensorial functions increased in activity and perverted; convulsions may occur. These symptoms are paroxysmal, they remit and intermit, and are often excited by sight, hearing, and touch.

"*The sullen form* is characterized by shyness and depression, in which there is no disposition to bite and no fear of fluids. The dog appears to be unusually quiet, is melancholy and has depression of spirits; although he has no fear of water he does not drink; he makes no attempt to bite, and seems haggard and suspicious, avoiding society and refusing food. The breathing is labored, and the bark is harsh, rough, and altered in tone; the mouth is open from the dropping of the jaw; the tongue protrudes, and the saliva is constantly flowing. The breathing soon becomes more difficult and laborious; there are tremors, and vomiting, and convulsions." — (Holmes's Surgery, vol. i., page 685.)

[2] "As regards the diagnosis, there is no particular symptom which can be relied upon as forming a distinguishing mark of this disease; the symptoms must be taken collectively, and then there is no disease simulating it; thus the peculiar combination of disturbance of the muscles of the pharynx and larynx, the psychical hyperæsthesia and fear, the altered voice, the difficult breathing and swallowing, the perverted appetite, the hallucination, and the easily excited rage are for the most part the diagnostic signs. The dread of water, the almost characteristic symptom in man, is not always present, as may be proved in recorded cases. On the other hand, this symptom may be met with in other diseases; thus in hysteria we may have what is called hysterical hydrophobia, where the sight of water induces a paroxysm of hysteria, but this only lasts a short time." — (Holmes's Surgery, vol. i., page 691.)

RECENT PROGRESS IN THE TREATMENT OF THORACIC DISEASES.

BY F. C. SHATTUCK, M. D.[1]

Cheyne-Stokes Respiration.[2] — In the case of M. Biot this type of respiration was well marked, and carefully observed for several weeks. The period of apnœa lasted on an average from seventeen to eighteen seconds, the period of dyspnœa from forty-two to forty-three seconds; the number of respirations during the period of dyspnœa was twenty-eight, the arrest of breathing always occurring in expiration.

The patient, aged fifty-seven, said he had never been sick before, and first noticed that he was not as well as usual fifteen days before entrance into the hospital. During the periods of apnœa he grew sleepy and somewhat cyanotic, both of which phenomena vanished during the period of dyspnœa; indeed, he begged earnestly for some remedy which would give him sleep. He had no headache, nor was any swelling to be seen about the neck which might suggest pressure on the pneumogastrics. The apex of the heart was outside of the nipple and apparently in the fifth intercostal space, though its exact situation was difficult to define. A double murmur was heard all over the heart, the point of greatest intensity being over the third right cartilage. The hammer-pulse was ill marked on account of considerable atheroma of the arteries; a double murmur was heard over the femoral arteries, and there was some pulsation of the jugulars. Aortic obstruction and regurgitation and slight mitral insufficiency were diagnosticated.

Pneumographic and sphygmographic tracings were taken repeatedly during the time the patient was under observation, and always with the same results. The periods of apnœa and dyspnœa were strongly contrasted in the tracings. The cardiac beats were uniformly more rapid during the former than during the latter period, — thirty-six in the eighteen seconds of apnœa, eighty-two in the forty-nine seconds of dyspnœa. The notch in the tracings, the presence of which is so characteristic of aortic regurgitation, was also more marked during the period of apnœa than during that of dyspnœa; that is to say, the arterial tension was diminished during apnœa.

The patient was rendered decidedly more comfortable by three doses of chloral hydrate of one gramme each during the afternoon. It was several times omitted, but resumed again at his urgent request. Once digitaline was substituted for it, but had no appreciable effect. While under the influence of chloral hydrate the duration of the periods of apnœa was reduced from seventeen or eighteen to ten or twelve seconds.

[1] We are greatly indebted to Dr. Shattuck for having kindly undertaken at short notice the Report which Dr. Knight was unavoidably prevented from writing. — EDS.

[2] Lyon Médicale, December, 1876; London Medical Record, February, 1877.

After four weeks' sojourn in the hospital the patient died, but unfortunately an examination was not permitted by the friends.

M. Biot advances no theory of his own to explain this form of respiration, but inclines rather to the theory of Traube than to that of Filehne. The fact that in his case arterial tension was diminished during the period of apnœa, and the fact that chloral, which diminishes the excitability of the nervous centres, reduced the duration of the period of apnœa, are both considered by M. Biot opposed to the theory of Filehne. (These and other theories which have been offered in explanation of this phenomenon are discussed in the number of this journal which appeared October 7, 1875.)

Dr. Andrew[1] reports a case of typhoid fever in the course of which this type of respiration was noted. The case was a pretty severe one, and on the twenty-second day of the fever, September 18th, on casual examination of the chest, dullness and bronchial respiration were found in the right lateral region. The next day but one it was noticed that the respiration was irregular and sometimes ceased entirely. The 21st, the respiration was still irregular, the patient passed his fæces in bed, and was in a condition of great prostration. The 22d, the prostration had rather increased, percussion was impaired at both apices, and bronchial râles were heard all over the chest; the respiration varied between 24 and 40. The heart sounds were very faint, the first almost inaudible. The 24th, Cheyne-Stokes breathing became fully developed, the period of dyspnœa lasting twenty-five seconds, that of apnœa ten seconds. Brandy was administered in large quantities, and the next day the action of the heart was stronger and the respiration regular, 36. From this time the patient improved slowly, and was sent, November 3d, to a convalescent home.

It will be seen that the form of respiration under consideration coincided in time with the period of greatest exhaustion; a period when the aërating surface of the lungs was much diminished and the action of the heart much enfeebled, from that condition of its muscular structure which is a concomitant of all the specific fevers to a greater or less degree, cloudy swelling. It will also be observed that the patient recovered.

The Use of the Hypophosphites in Phthisis. — Dr. Burney Yeo, in a paper read before the British Medical Association at the annual meeting in 1876,[2] sums up the results of his experience with these remedies, having administered them to nearly a thousand consumptives during the last five years.

In advanced phthisis, with both lungs involved, as well as in less advanced cases which run a rapid course and are attended with high fever,

[1] Lancet, March 17, 1877.

[2] British Medical Journal, February 10 and 17, 1877.

they have proved of no service. Their use was attended with more success in young persons than in older ones, and in fair persons of lymphatic temperament than in dark persons of sanguine or bilious temperament. They seem to be of most service in children laboring under all forms of chronic lung disease, and in young adults who tolerate the disease pretty well, and in whom it is limited to the upper portion of one lung. If benefit result it is almost immediate, as a rule, and is chiefly manifested by improvement in the general health and strength. The physical signs sometimes diminish, more often remain stationary, but may increase in extent simultaneously with marked improvement in the general condition. This improvement is often only temporary, and in consequence, it may be, of some imprudence on the part of the patient, the disease takes a fresh start, and further administration of the remedies is useless. Indeed, these cases usually run a very rapidly fatal course, and it is therefore suggested "that patients who are mending under the administration of these remedies should be protected with more than usual care against all those conditions which may possibly lead to a relapse."

Expectoration in Phthisis. — M. Daremberg has recently published a thesis on this subject, which has attracted some attention.[1] He thinks that while formerly too much attention was devoted to the sputum, it is now passed over too lightly. Chemical analysis of phthisical sputum has shown that it may contain chlorides and phosphates in almost as large amount as the urine, and, if profuse, that it may thus materially assist in lowering the condition of the patient. Albumen and fat are also important constituents of phthisical sputum. The sputum of chronic bronchitis, on the other hand, contains these products in much less degree, and while a patient suffering from chronic bronchitis loses by expectoration about two per cent. of the nitrogenous substances necessary to his existence, a patient suffering from phthisis loses nearly three times as much.

The diagnostic and prognostic value of the presence in the sputum of elastic fibres is also discussed. These, as is well known, are found only in phthisis, gangrene of the lung, and hæmorrhagic infarction. If the two latter be excluded, as is usually easily done by the absence of their other characteristic signs, phthisis alone remains. If in any individual case we find these fibres at a given time and then cease to find them, this fact will show that the malady has been arrested; if they reappear later we may affirm that a new portion of lung has become the seat of ulceration. It results from this that the absence of these fibres does not indicate the absence of cavities, but merely the absence of the ulcerative process at the time.

[1] Lyon Médicale, November 12, 1876; Journal de Médecine et de Chirurgie Pratique, December, 1876; London Medical Record, January, 1877.

It is of great importance to diminish expectoration in phthisical patients, as it is to them a double source of exhaustion by the abundance of organic and mineral substances which is expelled, and by the fatigue it occasions. M. Daremberg then speaks of the success which M. Bouchard has obtained in fulfilling this indication by the administration of creosote obtained from beech tar. It may be given in doses of from one to three grains, and its use has always been followed by success, sometimes complete, after a longer or shorter time. It may be readily distinguished from the creosote of coal tar by the use of collodion; fifteen parts of the coal-tar creosote and ten parts of collodion give a gelatinous mass, whilst beech-tar creosote mixes with the collodion and gives a clear solution.

Dust Diseases of the Lungs. — Several papers were read before the Medical Section at the last annual meeting of the British Medical Association which are interesting though they contain nothing absolutely new on this subject.

Dr. Hall[1] singles out the grinders from the various branches of the Sheffield trades, and divides them into wet, dry, and mixed, according as they use the dry stone, the wet stone, or both.

The dry grinders work in an atmosphere which is loaded with fine particles of stone and metal; and scissors-grinding, fork-grinding, and razor-grinding are the most fatal. The amount of dust in the workroom is greatly increased by replacing a stone which is worn out. A hole is drilled through the centre of the new stone, and it is then fixed on the axle and made to revolve slowly in the trough so that the steel will bite. The grinder then takes a bar of steel and pressing it against the edge of the stone works it down to a smooth and level surface; this process occupies about half an hour. In workshops not supplied with fans many grinders will not take the trouble to tie a handkerchief over the nose and mouth. The position of the men is also very constrained and favors pulmonary congestion: they sit on a low narrow bench, support their elbows on their knees, and when grinding very small articles keep the head over the stone.

The wet grinders, on the other hand, are not exposed particularly to dust, but work on the ground floor without coat, waistcoat, or neckerchief, and keep their shirts open at the neck even in the coldest weather. When perspiring freely they often go into the yard without putting on additional clothing, and are thus liable to become chilled and the subjects of acute and chronic diseases of the lungs, pleura, and heart, as well as of rheumatism.

Dr. Hall found the average age of all fork-grinders living in Sheffield, including boys, to be twenty-nine years; of razor-grinders, thirty-one;

[1] Remarks on the Effects of the Trades of Sheffield on the Workmen employed in them, with Special Reference to Inhaled Irritants. By John Charles Hall, M. D.

of scissors, edge-tool, and wool-shears grinders, thirty-two. Of fifty-four grinders dead from all causes, thirty-seven died of grinders' disease. In 1874, ninety-two grinders died, wet and dry; average age at death, forty-six years; in 1875, one hundred and eleven grinders died, wet and dry; average age at death forty-two to forty-five years.

By attention to three things Dr. Hall thinks that the occupation may be freed from the danger to life which it now involves: (1) special reference should be had to ventilation in the construction of buildings in which the occupation is carried on; (2) they should be supplied with proper fans; (3) mere boys should not be allowed to work at the trade.

Dr. Arlidge,[1] of Staffordshire, the great pottery district of England, calls attention to the frequency of bronchitis and phthisis among those engaged in the cruder processes of this manufacture. His statistics show that among the males of the population not engaged in making pottery the proportion of sufferers with bronchitis is eighteen per cent., that of potters a trifle more than thirty-six per cent.; and that with regard to phthisis the proportion among the former is thirteen per cent.; among the latter twenty per cent. He goes on to say that the male workers are exposed to the inhalation of dust from the clay in its manipulation, while the women are employed in the various branches of finishing, which offer no special source of disease other than lack of exercise and good ventilation. He finds that five male potters are the subjects of bronchitis or phthisis where one female potter is similarly affected.

Dr. Beveridge[2] of Aberdeen inquires into the reason for the fact that phthisis is on the increase among the granite-masons. They were formerly a very healthy set of men and are still fairly healthy, but there is no doubt that phthisis has increased among them while it has decreased among the rest of the population of those parts. After careful investigation he can attribute this increase only to a change in the class of men engaged in the trade. The best workmen have of late been attracted elsewhere — many of them to America — by the offer of higher wages, and their places have been supplied by young lads of inferior physique. The occupation, though a very dusty one, has the inestimable advantage of being carried on practically in the open air, though with shelter from wet and somewhat from wind.

Two New Symptoms of Pleuritic Adhesions. — Dr. Marten[3] reports his own case. He was laid up about a fortnight with left pleuro-pneumonia without effusion of serum. After this he improved gradually, and six weeks of mountain air restored him nearly to his former condi-

[1] Diseases incident to the Manufacture of Pottery. By John T. Arlidge, M. D.
[2] On the Occurence of Phthisis among Granite-Masons. By R. Beveridge, M. D.
[3] Berliner Wochenschrift, July 24, 1876.

tion of health and strength. Two symptoms, however, attracted his attention and were quite obvious to his medical attendant and those about him; after persisting three months they are now gradually disappearing. He noticed that when the volume of his stomach underwent any change, as just before, during, or after a meal, the upper portion of the œsophagus was thrown into repeated spasmodic contractions which lasted some seconds, occasioned considerable discomfort, were visible to those about him, and during their continuance rendered either speaking or eating impossible. His explanation of this symptom is that rapid change in the size of the stomach stretched the pleuritic adhesions to the œsophagus and thus set up the contractions.

It is well known that coughing or sneezing often occasions pain for some time after all active signs of a pleuritic attack have disappeared; the pain is due to stretching of the recent adhesions and causes the subject of it to exert counter-pressure with the hand over the corresponding ribs.

The second symptom, though rather more marked than the first, is not so easily explained. If, in consequence of rest of body and mind, respiration had become superficial for a short time — as just before falling asleep in bed — a deep, jerky inspiration which could be felt, heard, and seen took place and was repeated several times at intervals of a few minutes. This never took place in the morning, but only under the above-named conditions and when lying on the left side. It was very like a one-sided yawn and might be due to the same cause; only, as the pretty extensive adhesions on the left side prevented complete expansion of the left thorax, this was probably compensated by a sudden and irresistible contraction of the diaphragm, which was assisted by a more powerful, visible, and audible expansion of the left hypochondrium.

(*To be concluded.*)

PROCEEDINGS OF THE NEW ENGLAND PSYCHOLOGICAL SOCIETY.

BY DR. B. D. EASTMAN, SECRETARY.

This society met on March 13th, at Worcester, vice-president Bancroft, of Concord, in the chair, in the absence of the president, Dr. Tyler. Drs. Earle, of Northampton, Harlow, of Augusta, Draper, of Brattleborough, Stearns, of Hartford, Sawyer, of Providence, Brown, of Barre, Eastman, of Worcester, and Walker, Jelly, and Fisher, of Boston, were present.

At the afternoon session, Dr. Draper read a paper on Classification of Mental Diseases, in which he advocated the use of Skae's system as a provisional one. He deprecated the partisan attack of Dr. Brown, of West Riding, since Skae regarded his system as purely tentative, being founded on ætiology

as the nearest approach possible to a pathological basis. Dr. Brown thinks we shall never discover the molecular changes peculiar to insanity; Dr. Clouston thinks we shall. Dr. Draper thought that a careful study of the specific relations between cause and effect, and a sagacious discernment of the pathogenetic causes in mental diseases, would lead to a better classification than any we now have. Of particular causes he gave the first place to heredity, which he thought might be sufficient to produce insanity without secondary causes.

Dr. Earle had concluded thirty years ago that no system could be a complete one until pathological conditions were better known, and that any system based on symptoms must be unsatisfactory.

Dr. Walker had found no resting-place yet. The only true system must be based on pathology, and until that is possible the simpler our classification the better.

Dr. Harlow formerly had a great regard for the names of diseases, but of late the nicer distinctions between the forms of insanity had somewhat faded. He had not found cases to correspond with the old names, and would favor a pathological classification if it could be well founded.

Dr. Fisher considered Skae's classification handy and suggestive, but very imperfect. He had tried faithfully to apply it, with considerable success, and had recently examined it in the light of Ferrier's researches, and thought that the prominence Skae gives to insanity of somatic origin was borne out and explained by the supposed location of the instincts, appetites, and emotions in the posterior lobes. If these lobes are the common seat of organic sensations and their related emotions, we can understand why emotional disturbance so often proceeds from or is followed by disorders of the pelvic and abdominal viscera as well as of the heart and lungs. The old grand divisions of mania and melancholia, though often blending, were probably based on some anatomico-pathological distinction, and would never be superseded.

Dr. Stearns had used Skae's system, and found it of practical service. Dr. Clouston, its chief advocate, had told him that he was confident it could be perfected in time. Most of the Scotch alienists were hopeful of finding the true pathology of insanity. Dr. J. Batty Tuke said he could demonstrate microscopical changes in the brains of every insane person. Dr. Lindsay, however, claimed that he could show the same morbid appearances in the brains of paupers not insane. The pathologist at West Riding had made the same statement.

Dr. Eastman remarked that the superintendent of a state institution with five or six hundred patients had no time for microscopy. He thought the gross morbid appearances in the brains of persons dying insane not very instructive. While agreeing with Dr. Draper's view, that heredity might be the sole cause of insanity, he considered the bad early training, vicious surroundings, and want of discipline in children of insane stock very efficient in developing insanity out of heredity, and knew three sons of an insane mother who became successively insane at the age of twenty-one, with no assignable cause but heredity.

Dr. Stearns thought some kind of impaired mental constitution inherited in all cases, even in those attributed to blows or sunstroke, else why did the same causes fail to produce insanity in the majority of cases?

Dr. Fisher related a case of limited delusion of a week's duration resulting from heat stroke, where there was no traceable heredity and little or no emotional disturbance. The chief symptom was frontal headache or sense of tightness, lasting long after the mental symptoms had vanished. There seemed to be hyperæmia chiefly affecting the anterior lobes, this location being possibly due to a previous overstimulation of the centres in that region by too close attention to accounts.

Dr. Bancroft spoke of classification as a language by which alienists could better understand each other. Our language must be imperfect till our knowledge is perfected. He believed that insanity did begin *de novo*.

Dr. Earle mentioned as an example of heredity eighteen cases of color blindness in the descendants of three persons of one family who had this defect three generations ago.

Dr. Walker knew of epilepsy occurring in the youngest child only, in four cases, in different branches of the same family.

At the evening session the subject for discussion was Restraint. The members had all at the last meeting expressed their adherence to the American doctrine that a certain amount of mechanical restraint was at present necessary, but that it should be reduced to the minimum.

Dr. Fisher read from the last number of Maudsley's *Journal of Mental Science* the following: "It is every year becoming a graver and more important question whether the determined set against restraint, which has obtained for so long, has not been in itself a mistake. It is certain that there is a disposition on the part of some to break down the hard and fast lines which have hitherto been followed, and to judge every case on its own merits." This is exactly the American theory, and though he had seen this and other signs of a modification of opinion in England, he hoped the reaction would not go too far.

Dr. Walker did not think the time would ever come when restraint could be wholly dispensed with. He felt that some English superintendents had been uncharitable in their judgment of those in this country who honestly differed from them. He knew that in 1872 many English superintendents strongly deprecated the popular pressure in favor of absolute non-restraint, and felt that their patients suffered in consequence.

Dr. Earle said that there was now twice the normal proportion of restraint in our state hospitals in consequence of their crowded condition. Dr. Bucknill gave an impression in his letters of a unanimity of opinion in England in favor of non-restraint which was contradicted by facts within his personal knowledge.

Dr. Stearns had been able to discontinue mechanical restraint for several months, but should not hesitate to employ it if a case arose in which it was needed. He appreciated the impracticability of dispensing with it in crowded institutions where no control could be exercised over admissions.

Dr. Sawyer had reduced the employment of restraint to a very small percentage. He had lately seen in consultation two cases in which, to avoid restraint, sedatives had been used to a degree deserving the appellation of malpractice.

Dr. Draper used as little restraint as possible, but was unable to entirely dispense with it.

Dr. Brown found it occasionally necessary, especially in epileptic furor.

Dr. Bancroft thought it should be prescribed by each superintendent upon a study of the individual case, just as any medical or remedial agent should be. It should be used when needed, and avoided when not demanded by the circumstances of the case.

CIVIL MALPRACTICE.[1]

It may be truly said that when a youth begins the study of medicine and surgery as a profession, interest in the scientific portion of his curriculum predominates over other views, and that after he engages in practice humanity is the prevailing instinct. In our calling, science and life-long devotion to relieving human suffering are, and should be, our cardinal ideas. But unfortunately, as time goes on, the young enthusiast has his ardor dampened, his interest cooled, his humanity chilled by the hardness of the material with which he comes in contact. Selfishness, want of confidence, ingratitude in others weaken his trust in all mankind and undermine his youthful fervor. Worse than this, he is gradually brought to regard a certain class of his patients as seeking to enrich themselves at his expense, and watching for a chance to blackmail him. He is then forced to learn to be reserved, to be guarded in prognosis, and to protect himself. We can safely appeal to the experience of any physician of twenty years' practice whether this picture is too darkly drawn for truth.

Melancholy instances of baseless accusations and wearisome anxiety can be readily found in the lives of the recent dead and of living physicians in this community. Not only the open hostility of irregular practitioners, but the secret enmity of professional brethren occasionally is the promoter of accusations and of suits.

Very naturally the surgeon, dealing with external pathology, which is the most tangible to the laity, is most frequently accused of malpractice. Surgical suits comprise the bulk of the volume which is the text of this review, but Dr. McClelland's treatise also touches on ophthalmic, obstetric, and medical malpractice.

One suit breeds another. During the past two years, in this city, damages, small in amount it is true, were adjudged to a plaintiff suing her physician for rupture of the perinæum during labor. Since that most unfortunate judgment, two other suits for like cause have been brought to trial. The judgment alluded to we regard as more disastrous to the community than to the accoucheur, since were so common an accident as ruptured perinæum to be a frequent cause for claiming damages, the public would be eventually deprived of the services of all competent physicians, who would be as justly timid of engaging in obstetric practice as many general practitioners now are of treating a fracture.

[1] *Civil Malpractice: A Treatise on Surgical Jurisprudence, with Chapters on Skill in Diagnosis and Treatment, Prognosis in Fractures, and on Negligence.* By Milo A. McClelland, M. D. New York: Published by Hurd and Houghton. Boston: H. O. Houghton and Co. 1877. 8vo, pp. 554.

It is also noteworthy that quacks and pretenders are rarely sued. The most arrogant assumption, unblushing ignorance, and gross maltreatment frequently escape detection or punishment by the public. It is oftener the modest and conscientious physician, lacking in assertion if not in self-reliance, who is made the victim of a lawsuit.

Gratuitous service is no defense in a suit for malpractice. The doctor may give his best labor and time to the sick pauper, and be subsequently exposed to the expense of defending himself in a suit. Is there any other calling subjected to a like risk without a previous pecuniary contract? We think not.

Again, even if the unfortunate physician or surgeon gain his case and have a triumphant defense, he does not come out of the trial whole in pocket. A verdict for the defendant throws the costs of court on the defeated plaintiff, but that does not pay the doctor's counsel fees. Obliged to employ a competent lawyer, he is also obliged to pay him. A young physician may thus lose from three hundred to five hundred dollars in clearing himself from an unjust accusation, and he has no redress.

How frequently this is the case in England we see by the subscriptions raised in the *London Lancet* and elsewhere to indemnify a brother physician for such losses. These subscriptions come out of the pockets of his sympathizing medical brethren. A surplus of cheap and briefless lawyers fosters the spirit of litigation, which is too common among certain classes of all large cities. Lawsuits are begun on shares between counsel and plaintiff, and the unfortunate physician, if he have any worldly substance, is fair game. We may congratulate ourselves, however, that in a recent baseless suit for damages against a well-known surgeon in New York, the plaintiff was afterwards sued for the defendant's costs, and that a bill is now before the New York legislature requiring the plaintiff to give security before entering his suit that he will pay *all* costs if defeated.

Such a law would be a wholesome and equitable statute in Massachusetts, also, could it be enacted. We may well commend the following sentence from a charge by Judge Thayer, of Philadelphia:[1] —

"If you come to the conclusion that the plaintiff's complaint is altogether unfounded, then it concerns not only the interests of the parties in the present cause, and not only the interests of public justice, but also the established medical fame of this city, that you put an end, so far as you can, to experiments by unjustifiable lawsuits against skillful, attentive, and humane physicians."

The law, as we learn from numerous decisions in the work before us, does not distinguish between the various "schools" (so styled) of medicine. All are alike responsible; but responsible for their own methods of practice only. Thus the botanic physician can be held responsible for care and skill in the use and knowledge of his "school" of practice only, and so on.

The decision on page 282, however, gives so succinct a definition of the term "regular" physician that we are tempted to quote it entire: —

"A 'regular' physician is one who has made anatomy, physiology, and hygiene the foundation upon which to build, by the exercise of common sense (and the more of this latter the more skillful the physician), an enlightened

[1] Vide page 301.

and rational practice, selecting, from the whole realm of nature, animal, vegetable, and mineral remedies which have been found beneficial in the treatment of disease, repudiating the term 'allopathic' as being false in theory and false in application. The practice of these doctrines is 'legitimate medicine,' handed down from the times of Hippocrates," etc.

On a thorough revision of Dr. McClelland's book, we are led to take a more encouraging view of the subject of malpractice suits than we have done in the pages just written. The charges of the judges are eminently fair and just, and contain many valuable precepts, such as: "It is a rule in law that a physician never insures a result," and many others. Although juries too frequently side with the plaintiff, yet we find that the majority of the suits for malpractice in the book before us were won by the physician. Nothing can be fairer than the judges' charges, rulings, and decisions as to the exact degree of the physician's responsibility.

Suits generally allege that the physician or surgeon was unskillful or negligent, ignorant or careless. Just how much lack of skill or care is requisite to convict the defendant is very carefully defined.

"Reasonable" care, "reasonable" skill, "ordinary" care, "ordinary" skill are all that can be claimed of the medical attendant. The country surgeon, according to these rulings, cannot be held accountable for the want of a skill equal to that of a hospital surgeon. He must be judged by the level of his associate surgeons or physicians in his community. The average knowledge of his associates, the average training and education of his associates, if coupled with reasonable care, honest intent, and no *neglect*, are all that he is liable for. And as to neglect, he can be held liable only for gross neglect, *crassa negligentia.*

The average of education, too, is all that is required. "Not the skill exercised by the *thoroughly* educated (surgeon), nor yet that exercised by the *moderately* educated, nor merely the *well* educated, but the *average* of the thorough, the well, the moderate," etc.[1]

Again: "The question was not whether the doctor had brought to the case skill enough to make the leg as straight and long as the other, but *whether he had employed such reasonable skill and diligence as are ordinarily exercised in his profession.*"

Tried by that test few regular physicians would be found wanting, if juries always agreed with the judge, and were not biased by their sympathy for the plaintiff.

As might be expected, most lawsuits in surgery are based on the treatment of fractures and dislocations; in injuries of the shoulder, on unreduced dislocations or loss of power in the deltoid muscle, from injury to the circumflex nerve; in the elbow, on fractures with resulting anchylosis; in the wrist, on the deformity and stiffness often resulting from Colles's fracture; and so on in injuries of the lower extremity. In this treatise are also ably reviewed suits for "venesection, for opening an abscess, for gangrene from frost-bite, for using a bougie, for vaccination, for felons, for conveying erysipelas." Valuable chapters are those on diagnosis and prognosis: the latter based on the results in fractures given by the extensive tables of Hamilton and Sayre.

[1] Page 103.

While we are sorry to recognize the necessity, or *raison d'être*, of a book on suits for malpractice, yet we cannot but conclude that Dr. McClelland's treatise will be of great value and of great comfort to the busy and anxious surgeon. The work is well done. It is quite complete to date. It is encouraging in its tone and in its results. We feel that we can safely commend it to the profession as the best of its kind in this country. D. W. C.

SANITATION IN GEORGIA.

The State Board of Health of Georgia was established by act of legislature in 1875, when also quite a stringent law was passed, providing for full and systematic registration of births, marriages, and deaths, and making the ordinaries (county officers) registrars of vital statistics. No provision was made for any remuneration for this work; and penalties were imposed upon parents and families in case of failure to report the facts required of them. The law proved inoperative and was repealed the next year, striking out the penalty clauses, and giving to the ordinaries five cents for each birth or death reported. Each county, too, was required to create a board of health, of which the ordinary should be secretary, and upon which there must be also two practicing physicians; they were directed to report to the State Board of Health at least once a year, but no provision was made, or is yet made, for their remuneration. Consequently only eighty-five counties out of one hundred and thirty-seven made returns — and even these were quite unsatisfactory — for the year 1876. The vital statistics, therefore, of this State of nearly two million inhabitants are of comparatively little value. Only twenty-five counties established boards of health.

With such difficulties before them, with an inefficient law and an inadequate appropriation, with little power, and even in some cases in face of an unwillingness on the part of the medical profession heartily to coöperate with them, the state board have done their work thus far in a manner to justify the high expectations of the people of Georgia. Their plans for the future are well laid out in the communications to the legislature by President Thomas and Secretary Taliaferro. It is to be hoped that means will not be wanting for their fulfillment.

The greater part of the report is devoted to a consideration of the yellow-fever epidemic, a careful investigation of which was undertaken at the suggestion of the governor of the State. The board were divided into two committees, one to sit in Savannah and the other in Brunswick, where they made careful and painstaking researches, abandoning their private business and defraying the expenses of the inquiry out of their private means.

The general health of the State was good until the appearance of the epidemic, the general history of which is given as follows: but first it should be said that the information was obtained from the letters and testimony of physicians and of the Savannah Benevolent Association. Neither the State nor the city took proper and adequate measures minutely to investigate the causes

etc., of the epidemic, which, of course, would involve the expenditure of a considerable sum of money.

The first death from yellow fever occurred in Savannah, July 30th, and from that day to the 15th of November 838 interments were certified as from yellow fever, and a certain number escaped registration. Of all the deaths from that cause the percentage to the population was 9.44 among the whites and 1.06 of the colored race. The population of the city during October was 7353 whites and 11,614 colored, showing that about twelve thousand persons, largely of course of the better classes, had left the city. Dr. Duncan's mortuary statistics show that there are always many deaths from miasmatic diseases in Savannah, and it is interesting to compare the records of the last seven years: —

In 1870 of a total of	1015	deaths	there	were	248	from	the	miasmatic	diseases.		
In 1871 "	"	"	1033	"	"	"	235	"	"	"	"
In 1872 "	"	"	1165	"	"	"	288	"	"	"	"
In 1873 "	"	"	1290	"	"	"	271	"	"	"	"
In 1874 "	"	"	1036	"	"	"	192	"	"	"	"
In 1875 "	"	"	887	"	"	"	162	"	"	"	"
In 1876 "	"	"	2249	"	"	"	1292	"	"	"	"

The mortality for 1876 was therefore about seventy per thousand of the total population of Savannah, or about eleven per cent. of those who remained in the city, and only a little less than in Buenos Ayres during the severe epidemic of 1871.

The importation hypothesis of the disease is rejected by a large proportion of the medical men in Savannah, and that of the local origin is warmly maintained; but the Board of Health show that "although it cannot be proved that any cases of yellow fever were carried into the city of Savannah by vessels from Cuba, while it cannot be proved that any of the early cases in the epidemic had personal contact with such vessels, still the fact remains that no cases of the disease occurred at Savannah until after the arrival of vessels open to suspicion of infection; that the outbreak of the disease did not occur at a point far removed from these vessels, but it did occur in the nearest inhabited block of the city to the wharf at which said vessels lay; and further that the first two cases of the disease had been in the immediate vicinity of the suspected vessels."

Given, however, the first case, imported or not, there are in Savannah most of the conditions needed to assure a severe epidemic of any one of the "filth diseases" which should once get a secure foothold, namely, a wet, alluvial soil surrounding the city, although itself situated on a bluff, reeking cess-pools, bad sewerage, filth-sodden yards, streets, and probably cellars, wells almost certainly contaminated, and a public water supply actually defiled to some extent — very much more so than Lake Cochituate — by human filth.

The severe epidemic in Brunswick, a small town of four thousand inhabitants, situated on the alluvial deposit at the confluence of two rivers, was, by common consent, due to a few cases imported in some Spanish vessels. A certain number of deaths occurred in Macon, Augusta, and a few other places, directly traceable to refugees from Savannah and Brunswick, and thought to be fairly attributable, in the two cities above named, to infected railroad cars; the disease extended and became epidemic there only on low soil, the high land escaping almost entirely.

It is generally agreed now among writers on yellow fever that the disease originated and was for some time confined to the borders of the Gulf of Mexico and to the Greater Antilles; whether it was conveyed thence to Cuba and the western coast of Africa, or whether it is of spontaneous origin in those places, even so high an authority as Hirsch is in doubt. The disease has been transported to various parts of both American continents, as is shown by the valuable table of prevalence compiled by Dr. McClellan and published with this report. In 1850 cases occurred on the eastern coasts, starting from New Orleans in 1849, over a range of about eighty degrees of latitude. It is interesting to note that it was almost unknown on the western coast until after free communication had been established by the Panama railroad. Yellow fever has been conveyed to Europe quite often, the last severe epidemic having been at Barcelona; but the careful quarantine, established first by the French government, has rendered any future outbreaks scarcely to be feared.

Generally speaking, yellow fever becomes very fatal only on moist, alluvial, littoral soil, especially if charged with decomposing organic matter, and apparently, by preference, along the sea or gulf coasts. Cold weather, to the degree of "black frosts," always puts a stop to the disease, but does not of necessity destroy the *contagium vivum* (allowing, for convenience of argument, that there is such a thing) unless prolonged, for vessels once thoroughly infected and afterwards rendered free from cases of the disease by removal to cold latitudes have been known to develop fresh cases without renewal of exposure upon their return to hot climates. Like the *keim* of cholera, which Pettenkofer thinks may retain its power to communicate that disease at least six months, and which Netten Radcliffe has shown may have kept alive a constant prevalence of cholera since the first great European outbreak nearly half a century ago, without supposing any fresh autochthonous cases, the specific poison of yellow fever will probably be shown to have been kept in a state of potential activity for at least as far back as we have any authentic history of the disease; and it can hardly be necessary, if indeed it is supported by carefully observed facts, to suppose any purely local origin for any particular epidemic.

Quarantine laws are inadequate and insufficiently enforced in Georgia, conditions inviting disease prevail in most of the cities of that State, and there is the telluric and meteorological influence always at hand in the river valleys and along the coast which makes some form of miasmatic disease prevail at that season of the year. Sanitarians generally will approve the following statement of the Board of Health in their Conclusions and Preventive Measures, "That yellow fever can be imported, and will and can become epidemic from the neglect of proper sanitary regulations, will not be questioned. That it may be imported and not become epidemic in the absence of the circumstances which favor its propagation will also be admitted without discussion." They recommend drainage of the marshes adjacent to Savannah, improvement of the sewerage, a pure water supply, and efficient quarantine, all of which the city now sadly needs.

We should hardly point to Philadelphia as a city of remarkably good sanitary police, but thus much has been accomplished there, — and Savannah

might do the same, — that yellow fever is scarcely feared now, although there are persons living who have abandoned the city three times in the early part of this century to escape the pestilence. That the Georgia State Board of Health is leading the public and the profession of their State in the right direction to accomplish so desirable a result is manifest to any one who will well spend a few hours in reading their report.

The remaining papers, on Food, by Dr. Cooper, and on Lunacy, by Judge Bigham, must be passed over very briefly. As in the immense majority of our States, the condition of a very large proportion of the insane in Georgia is pitiable in the extreme, while the wealthier communities of our country are wasting large sums of money to build hospitals of a questionable architectural magnificence for a favored few, at the same time dooming many of the others to the squalor and harshness of poor-houses, or to hopeless incurability from being kept in poorly provided homes, to the neglect of early treatment, entirely overlooking the important matters of facilities for the education of physicians and the training of nurses and attendants, and of the best modern appliances for medical treatment. Of the eighteen hundred insane in Georgia, about one third are in a single, overcrowded hospital. For the credit of the State it is just as well not to say where the rest are; but none of our houses are free enough from glass to make it safe for us to indulge in much throwing of stones.

MEDICAL NOTES.

— We take pleasure in calling attention, from time to time, to the undiminished interest taken in the Boston Medical Library, as made evident by the gifts which it receives. Dr. Edward Reynolds has made over the whole of his valuable library of three hundred and twenty standard works, all in perfect condition and handsomely bound. From Dr. Edward Jarvis, of Dorchester, sixty volumes have been recently received, in addition to one hundred and fifty volumes previously given. Dr. Algernon Coolidge has given over one hundred volumes of the most recent French and German works upon anatomy and physiology, a class of books heretofore much needed in the library. A donation of three hundred dollars has just been made by Donald Kennedy, Esq., of Roxbury, a very timely and much appreciated aid in the present circumstances of the young association. Dr. Edward Wigglesworth has given eighty dollars for binding.

— It having been reported that the chair left vacant by the death of Sir William Fergusson had been offered to Mr. Lister, the students of Edinburgh presented a memorial to their distinguished teacher, begging him not to desert them. Mr. Lister in his reply, informing them that the position had not been offered to him, took occasion to imply that he should not be likely to accept it even if he had the opportunity to do so. His criticisms on the teaching of clinical surgery in London, which he designated as "a mere sham," have given great offense to London surgeons. *The Lancet*, in alluding to this circumstance, makes the following withering remark: "In many quarters Mr. Lister has acquired the reputation of a thoughtful, painstaking surgeon, and has done

some service to practical surgery by insisting on the importance of cleanliness in the treatment of wounds, although this been done by the glorification of an idea which is neither original nor universally accepted." We do not think this is the opinion of surgeons in other countries than England. There can be no doubt that Lister will be considered in history as one of the most eminent surgeons of his day. Whether the officers of King's College will best consult their own interests by electing him or one of their surgical staff to fill the present vacancy is for them alone to determine.

— In a paper recently published in *L'Union Médicale*, Dr. Dujardin-Branmetz claims that the treatment of typhoid fever by the method of Brand — that of cold baths — does not give any more satisfactory results than that by the ordinary methods, while at the same time it is cruel and painful. He moreover advocates the use of tepid baths in typhoid fever on the ground that they lower the temperature and pulse, and thus possess the same advantages as the cold baths, without the inconveniences and dangers of the latter. M. Féréol, however, in a recent discussion, said that he had not found the effect of tepid bathing beneficial, the reduction of temperature being inconsiderable.

— *The American Journal of Pharmacy* states that from the library of Sardanapalus, King of Assyria (found by Layard at Nineveh), it is proved that the Assyrians, some three thousand years ago, had a system of weights and measures almost as philosophical and methodical as the French metrical system, all the units of surface, volume, and weight being derived from a single linear unit. The base of the system was the cubit or elbow (equal to 20.67 of our inches). These cubits, multiplied with three hundred and sixty, gave the stadium, measure for great distances. The fundamental unit of surface was the square foot (foot equal to three fifths of the cubit). The cubic foot constituted the metreta (bushel), which, with its subdivisions, was the standard of all measures of capacity. A metreta of water was the talent, the unit of all measures of weight. The sixtieth part of the metreta gave the mine, and this divided into sixty parts, the drachm. The weight of the metreta (or bushel, water) was about seventy avoirdupois pounds, the mine about 18.7 ounces, and the drachm about one hundred and fifty-nine grains. The sexagesimal system appears to have been used in all these calculations, and is evidently a very practical one, combining the advantages of the decimal and the duodecimal systems.

— Dr. Müller-Warnek, assistant physician in the medical clinic of Professor Bartels in Kiel, gives in recent numbers of the *Berliner klinische Wochenschrift* a detailed account of two cases of chronic diabetes mellitus treated with salicylate of soda. Different methods of treatment had been carried out before in these cases without success. The following conclusions are arrived at by the author in regard to the drug: (1.) Salicylate of soda can completely remove the symptoms of diabetes mellitus, yet its action does not appear to be lasting in many cases. (2.) The symptoms of diabetes are made to disappear the quicker by salicylate of soda the greater the dose in which it is used and the longer it is borne by the patient. (3.) The first action of medium daily doses, nine to ten grammes, on diabetics appears gradually to abate, while large doses, fourteen to sixteen grammes in a day, act on patients progressively.

(4.) Salicylate of soda can be borne in chronic diabetes in large daily doses for a long time without special disturbance of the general condition. If symptoms of poisoning occur, they rapidly and completely disappear after a short omission of the drug. (5.) Salicylate of soda in chronic diabetes, even on long-continued exhibition, appears to possess only a slight irritating action on the kidney.

— In 1875 the horse-butcheries of Paris furnished for public consumption 6865 horses, asses, and mules; in 1876 they furnished 9271, giving 1,685,470 kilogrammes of net meat. At Lyons the number has diminished from 1262 in 1875 to 1088 in 1876. On the 1st of January there were fifty-eight butcheries in Paris and only seven in Lyons. At its meeting January 9th the committee *de la viande de cheval* decreed a silver medal to M. Chambéry, who opened the first horse-butchery in Lyons in 1867, and a gold medal to M. Tétard, who has nine butcheries in Paris. Moreover, the lovers of horse flesh wish the English to practice its consumption, and M. Decroix, the founder of this committee, has placed at its disposal the sum of eleven hundred francs to encourage the person who shall open and operate the first horse-butchery in London.

— A recent number of the *Medical Times and Gazette* has the following summary by M. Vibert of his own observations on the advantages of the preliminary injection of morphia in thoracentesis, or in any operation which may give rise to syncope. (1.) It very much mitigates the suffering inherent to the operation. (2.) It protects those operated upon from syncope and its redoubtable consequences. (3.) It obtains for them a sense of comfort, which is produced as soon as the operation is finished, which persists for many hours, and which may be prolonged by additional injections.

— Drs. James R. Chadwick, William T. Lusk, William Goodell, and Horatio R. Storer have been recently elected corresponding fellows of the Obstetrical Society of London.

BOSTON CITY HOSPITAL.

MEDICAL CASES OF DR. G. H. LYMAN.

Complete Rupture of Perinæum relieved by Operation. — Mrs. J. T., aged thirty, was admitted to hospital November 20, 1876. Has had six children; never miscarried. States that at birth of her last child, fifteen months ago, the head being born before the arrival of her physician, a female friend dragged the child forcibly through, tearing her very badly, and that she has never been able to retain fæces or flatus since. Examination reveals the vagina and rectum in one large cloaca. The recto-vaginal septum in addition to the transverse separation is also lacerated longitudinally backward on the left side for an inch. Her condition has been disgusting to herself and all about her, as she is unable to walk across her room without the escape of offensive discharges. Has now superadded an acute attack of dysentery for which she entered hospital. For four weeks the dejections were very frequent and ten days since the disease developed fully, with chill, fever, vomiting, and severe tenesmus. She is now much prostrated.

December 12th. The dysentery being relieved, Emmett's modification of Sims's operation for restoration of the perinæum was performed by Dr. Lyman.

January 6th. A week after the operation large masses of scybala descended, filling the rectum and requiring removal by scoop. The reunited sphincter, however, still remained intact, controlling the evacuations. A small button-hole fistula remained in the recto-vaginal septum allowing passage to a small quantity of the more liquid fæces; the anterior portion of the perinæum had given way.

January 8th. The recto-vaginal fistula was closed by sutures, and on the 17th was found to be firmly united.

January 29th. The rent in the anterior portion of the perinæum was again denuded and brought together by deep silver sutures, but though the union was apparently good for several days after the removal of the sutures, it gave way again to some extent in consequence of bad management on the part of the patient during the passage of large scybala, but without injury to the recto-vaginal septum or sphincter, which remained firm. She was advised to go home and wait a while before farther interference for the diminution of the vulvar orifice.

March 21st. Mrs. T. presented herself for examination, in fine health and spirits, declaring herself to be perfectly well. She retains perfect control of the sphincter, and is able to move about and do her own work as well as ever. There is a slight prolapse of the septum, but the uterus is well up in place and she declines any further operation.

Acute Endocarditis in Rheumatic Fever. — E. C., age twenty-two, unmarried, admitted November 20, 1876. Reports that she had always been in good health. Catamenia at thirteen, continuing normal since.

Four days before admission she had a chill followed directly by fever and vomiting, and two days later by slight attacks of epistaxis recurring at intervals for twenty-four hours. Tongue creamy, bowels in good order, sleep poor. Pulse 120; temperature 103.8° Fahrenheit.

November 22d. Rheumatic fever well developed. Pain and swelling in wrists, knees, and elbows, with acid perspiration. The joints were wrapped in cotton and she was ordered ten grains of salicylic acid every hour.

November 24th. For past twenty-four hours has had some deafness and disturbance of vision, nausea and vomiting, with burning sensations in stomach. Vomited some blood. Is very restless and has profuse perspiration. Pulse 144; temperature 100.4°. Acid not wholly omitted, but reduced to one dose every three hours if it did not cause vomiting.

November 25th. House physician called in the night; found her with tumultuous action of the heart, dilated pupils, face and extremities cold and covered with clammy perspiration; slightly delirious, sometimes stupid, and not easily aroused; pulse 160, temperature 100.5°, respiration 40. Sinapisms, stimulating enemata, and whisky energetically used caused relief in an hour. At the morning visit she said that during the night attack she had pain in the left lumbar region and was deaf. Still slightly delirious and with pupils enlarged. Two endocardial murmurs were now detected. Pulse 108; temperature 100°. Pulse weak and jerky; rhythm perfect. Six leeches were

applied to cardiac region. Was ordered a dose of calomel with opium, to be followed in a few hours by a saline. She was also ordered aconite, digitalis, and chloric ether, every three hours.

November 26th. Much improved. Heart more quiet and the murmurs less intense. Pulse 100; temperature 99.8°.

November 27th. The diastolic souffle is harsh and rasping, and is heard from the apex to the top of the sternum. Complains of prostration and severe pain in knees. Pulse 84; temperature 98.4°.

November 29th. The diastolic murmur is less intense, and is most marked over fourth rib. Pulse 100; temperature 102°. Digitalis reduced from fifteen minims to ten minims, and the patient is to have two grains of quinine three times a day, with sufficient Dover's powder to mitigate the pain in the joints.

November 30th. Pulse 72; temperature 102°. Silibant râles are found over both fronts. The diastolic murmur, now faintly heard at apex, increases in intensity in a semicircular line upwards, touching the sternum at the fourth interspace and reaching its maximum at the second rib, where it is very loud and marked. She is much prostrated.

December 1st. Pulse 60; temperature 100.4°. The systolic murmur is now as well developed as the diastolic and in the same course. Chest covered with sudamina, perspiration free, and the articular pains still severe. Stimulants *pro re nata*. Digitalis omitted.

December 5th. The prostration requires large amounts of stimulants. Patient has a bed sore and slight diarrhœa.

December 6th. Some increased dullness about second rib as if from pericardial effusion. To the other two is now added a well-marked presystolic murmur, increasing in intensity from the third rib upwards, inaudible at apex.

December 9th. Respiration somewhat embarrassed. The dullness on percussion still continues in the same locality. Respiration 60; temperature 100.4°; pulse 60.

December 10th. At the third rib, near the sternum, a decided thrill is imparted to the finger and traced very perceptibly into the carotids.

December 11th. Patient complains of increased cardiac pain and distress. The presystolic murmur is now distinctly audible at the apex; no change in the others. Mucous râles over both fronts and as far back as can be heard without raising the patient; probably due to œdema. Pulse 56; temperature 98.4°.

December 12th. Heart's action more steady and less intense. The presystolic murmur has disappeared.

December 15th. All the symptoms rapidly improving. Systolic murmur hardly audible at apex, still intense from third rib and sternum upwards *to the left*. Pulmonary irritation nearly gone. Carotid pulsations quite distinct, with a marked thrill in the second interspace, two inches to the left of sternum.

December 17th. With the subsidence of the cardiac symptoms, the articular pains have returned with fever and restlessness. Salicylic acid was again carefully tried, but caused nausea and distress, and opiates gave no relief until compresses were applied and bandaged from the toes to the knees.

December 18th. The salicylic acid was again tried, but could not be borne; perspiration profuse. Quinine, omitted for some days, again resumed.

December 19th. Pain relieved.

December 23d. No return of pain. Systolic murmur diminishing, but the rhythm and force of the heart were very irregular, and an intermittence every seventh or eighth pulsation was observed, for which arsenic was ordered.

December 26th. No farther relapse. Patient rapidly improving in every way.

February 24th. Since the last report she is entirely convalescent. Has had occasionally slight attacks of pain with hysterical symptoms, but is up and about the ward, rapidly recovering strength. The murmurs have entirely disappeared and she has no discoverable cardiac symptoms.

Cases of chronic valvular disease of the heart, which are traceable with more or less of confidence to antecedent attacks of rheumatic fever, are common enough in the experience of all physicians, especially so to those engaged in hospital practice; but acute endocarditis supervening suddenly in the course of rheumatic fever must notwithstanding be of comparatively rare occurrence in the experience of any one practitioner, and, for this reason only, the above case is thought worth reporting. Two or three points will be more especially noticeable: (1.) The intolerance of salicylic acid. This remedy is now almost universally used in the hospital, and though not always, it is in the vast majority of cases successful in cutting short the arthritic pains in twenty-four hours or less. In this case not only did it fail to give relief, but, by the gastric irritation excited, it materially aggravated the patient's sufferings. (2.) The intensity of the murmurs and the presence at one time of well-defined systolic, diastolic, and presystolic souffles, which, with the pain, cardiac and pulmonary distress, and the increased area of dullness, indicated the extent of the endocardial and pericardial inflammation. The fact that these murmurs and all evidence of resulting valvular disease finally disappeared entirely does not prove that the organ sustained no damage to be manifested at some future period. In this connection the remark of Aitken (vol. ii., page 574) is significant: "After an attack of endocarditis there may be no defect of the valves capable of physical recognition. The valve texture, however, may be nevertheless damaged, so that shrinking, atrophy, and retraction of the tissue, commencing gradually, progresses very slowly, so that no valvular disease may appear for months after; and any pain in the region of the heart which may have attended such an attack may be quite forgotten." It is hardly probable that these murmurs were merely hæmic, in view of their sudden development and the coincident symptoms. Merely hæmic murmurs — not of rare occurrence in the course of rheumatic arthritis and Bright's disease — are more gradual in their development, less intense and unaccompanied by such extreme cardiac irritability, pain and distress. (3.) The situation of the maximum intensity of the murmurs, increasing from the valvular orifices upwards, and the well-marked thrill developed in the same course and extending into the carotids, would render it probable that the inflammation was most intense about the valves of the aorta and the first part of that vessel.

LETTER FROM BERLIN.

MESSRS. EDITORS, — Inasmuch as your journal extends its ægis over so-called preventive medicine, a few words upon a department of school hygiene, namely, gymnastics, may not be judged out of place.

It is well known that for many years past there has been much enthusiasm in Germany, especially in North Germany, with regard to gymnastic exercises. This interest in the better development of the body, combined with the German love of organization, made itself felt in the formation of *turnvereine* on every hand; all united together in a great national *verein* and in the impulse given to the systematic physical instruction of school children.

For quite a number of years past every girl in Berlin, from the age of six or seven upwards, has been obliged for two hours a week to receive systematic instruction of this kind, generally given in some large hall attached to or near the school, and every teacher desiring to teach in the branch has been obliged to receive a special diploma from one of a limited number of authorized training schools. I have recently been able to see something of the practical instruction of teachers in Berlin, and also of girls of different ages, as well as to hear the opinions of a few instructors and scholars with regard to the working of the system, and I propose to speak of what has struck me as important in the matter.

It may fairly be maintained that school gymnastics might be expected to be of service in three principal respects: (1.) By giving refreshment and relief after the fatigue due to constrained positions of the body and to mental effort. (2.) By imparting certain special faculties and habits of body, such as better methods of breathing, walking, and running, and of maintaining the equilibrium in various postures, etc.; in general by increasing what might be called muscular consciousness and muscular power. (3.) By imparting habits of obedience and of combined action.

The Prussian system of instruction is not well calculated to fulfill the first of these indications, as it does not (as in some schools in Massachusetts) interrupt the school hours, but is pursued as a separate branch of study, and generally in a building separated from the school-house. With regard to the second, opinions differ. Most of the teachers naturally maintain that the carriage and health of the pupils is benefited by the exercises, but I found one instructor, an outspoken and apparently intelligent man, who doubted greatly whether, with only two hours a week of exercise, either of these results was obtained, saying that "one might as well expect to live by eating twice a week," and he held that the real benefit lay in the acquisition of habits of prompt obedience and in the amusement which was afforded.

Two young men of education and intelligence, with whom I talked, expressed similar views, and hardly credited the opinion sometimes maintained that the training given to the boys at school might take the place of one or two years' service in the militia. One, however, said that he had noticed, what may well be believed, that among his acquaintances, when in later years fencing, etc., were studied, they came more easily to those who had gone through the school exer-

cises than to those who had been excused from these exercises. As to the third indication, the importance of which could hardly be overrated, it will readily be conceded that the manner of meeting it which received Prussian approval could hardly fail to be the best. The most important requisites for the success of exercises undertaken for this end are perhaps large, but not too large classes, a hall large enough to allow of marching and manœuvring, a sufficient number of assistants, and above all a strict but inspiriting teacher, for it is the latter condition much more than the character of the exercises which determines whether these shall be invigorating and useful or tedious and useless.

The fashion of wearing very high and pointed boot heels prevails apparently to an unfortunate extent among the children of Berlin, and in glancing through the ranks of a hundred little girls of about eight years of age, it was easy to pick out a number of *pedes valgi* and *vari* to which such heels had given rise. I found also that the teachers were aware of the fact, but felt themselves powerless to move in the matter.

Several new hospitals have been built in Berlin since the war, which have diminished to some extent the numbers of patients in the Charité. The largest of them, approaching in size the Charité itself, is the Städtische Krankenhaus, at Friedrichsheim, a pleasant place on the borders of the city. It is a collection of handsome brick pavilions of two stories, separated by large spaces of cultivated ground. In the midst of this open ground, about fifty to a hundred feet from each pavilion, is a structure perhaps five feet high by eight square, with open, slatted sides, communicating by under-ground passages large enough for a man to walk through with the heating apparatus in the cellar of each building, and finally with large registers in the middle of each ward, opening upwards, but raised about three feet above the floor. In this way pure heated air is introduced, while the foul air is sucked out through numerous openings near the walls into a chimney at one end of the building, the air within which is in winter heated by the same furnace which heats all the wards, in summer by a special fire. Some of the rooms can also be heated by direct radiation from hot-water pipes, and the raised, table-like registers are surrounded by similar pipes, whereby the air within is still further heated and a good draught maintained. The arrangements are said to work very well, but to be expensive.

Virchow is credited in part with the suggestion of this plan, as also with that of the form of the chairs used in the hospital, which are peculiar in possessing at the back a plain slanting piece of wood so placed as to support the os sacrum and the lower lumbar vertebræ. On trying them I was tempted to make the criticism that the fore-legs needed slight lengthening, in order to counteract a tendency to slip forward, but they were otherwise very comfortable.

Very truly yours, JAMES J. PUTNAM.

COMPARATIVE MORTALITY-RATES FOR THE WEEK ENDING APRIL 7, 1877.

	Estimated Population, July 1, 1877.	Total Mortality for the Week.	Annual Death-Rate per 1000 for the Week.	Death-Rate for the Year 1876.
New York	1,077,228			27.46
Philadelphia	850,856	367	22.43	22.88
Brooklyn	527,830	215	21.18	24.31
Chicago	420,000	143	17.70	20.41
Boston	363,940	139	19.86	23.39
Providence	103,000	42	21.16	18.54
Worcester	52,977	20	19.63	22.00
Lowell	53,678	16	15.50	22.21
Cambridge	51,572	14	14.12	20.54
Fall River	50,370	23	23.74	22.04
Lawrence	37,626			23.32
Lynn	34,524	9	13.56	21.37
Springfield	32,976	11	17.35	19.69
Salem	26,739	7	13.61	23.57

ERRATUM. — In our last number, page 430, line ten, the word "veins" should be "virus."

BOOKS AND PAMPHLETS RECEIVED. — The Curability of Insanity. By Pliny Earle, M. D., Utica, N. Y.

Phthisis: Its Causes, Diagnosis, and Treatment. By William Porter, M. D. (Reprinted from the St. Louis Medical and Surgical Journal.) 1877.

Discours prononcé à l'Inauguration de la Société Clinique de Paris. Par M. le Professeur Peter, Président. Paris. 1877.

Sixteenth Annual Report of the Board of Managers of the Woman's Hospital of Philadelphia. January, 1877.

Report of the First Congress of the International Otological Society, New York, September, 1876. New York: D. Appleton & Co. 1877.

A Case of Diplocusis Binauralis, with Remarks, and a Case of Restricted Range of Audition. By Swan M. Burnett, M. D., of Washington, D. C. (Reprinted from the Archives of Ophthalmology and Otology.)

Circular No. 9, War Department. Washington, March 1, 1877. On the Transport of Sick and Wounded by Pack Animals. By George A. Otis, Assistant-Surgeon U. S. Army.

Principles of Theoretical Chemistry. By Ira Remsen, M. D. Philadelphia: Henry C. Lea. 1877. (From A. Williams & Co.)